

## **REMARKS**

### **Formal Matters**

Claims 1-5, 8, 10, 11, 13-21, 23-25, 27, and 32-49 are pending after entry of the amendments set forth herein.

Claims 1-5, 8, 10, 11, 13-21, 23-27, and 32-49 were examined. Claims 1-5, 8, 10, 11, 13-21, 23-27, and 32-49 were rejected. No claims were allowed.

Claims 1, 13, 21, 33-35 have been amended. Support for these amendments is found in the claims as originally filed, as well as in the specification at, for example: claims 1 and 13: page 3, lines 28-33, page 4, lines 4-7, page 4, lines 22-29; claim 21: Figures 4A and 4B, page 11, line 24, through page 12, line 4; claim 33: Figure 4C, page 12, line 24, through page 13, line 2; claim 34: page 8, lines 5-13; claim 35: Figure 4D, page 13, lines 3-10.

Claim 27 has been canceled.

Applicants respectfully request reconsideration of the application in view of the amendments and remarks made herein.

No new matter has been added

### **Entry of Response to the Final Rejection filed August 29, 2003**

The Applicants note that amendments to the specification in the Response to the Final Rejection filed on August 29, 2003, may not have been entered. If such amendments were not entered, the Applicants request entry of the amendments at this time. A copy of the Response is provided herewith as Exhibit A.

### **Objection under 35 U.S.C. § 132**

The amendment filed October 15, 2003 has been objected to under 35 U.S.C. § 132 because it allegedly introduced new matter into the disclosure. Specifically, the Office Action states that the amendment to the specification changing the term "the acceptor molecules of the surface coating" to "the donor molecules of the surface coating" is inconsistent with the previous paragraph on page 4 (lines 8-13), and other portions of the specification at page 4, line 30, and page 6, line 18. This objection is respectfully traversed.

With respect to the paragraph on page 4, lines 8-13, the Applicants note that the paragraph was amended in the response to the Final Rejection filed August 29, 2003 ("Exhibit A"). The amendment to the specification corrected the typographical error on page 4, line 10, and changed the term "acting as energy acceptors" to "acting as energy donors." Accordingly, the objected amendment to the specification filed on October 15, 2003, is consistent with the current status of the specification.

The amendments to the specification filed on August 29, 2003, and October 15, 2003, that correct obvious typographical errors have support in the specification as originally filed and are consistent with the entire specification. The amendments to the specification clarify that the surface coating includes molecules that are capable as acting as energy donors, not energy acceptors. With the exception of the two instances in the specification in which the error has been corrected, the entire specification refers to the surface coating as including molecules that are capable of acting as energy donors.

For example, the following portions of the specification note that the surface coating includes molecules that are capable of acting as an energy donor: page 8, lines 14-15 ("The protection layer 3 is important to the invention because it prevents the donor molecules on the surface coating..."); and page 9, line 27 ("surface coating 2 that contains the donor molecules").

In addition, the sections of the specification cited in the Office Action (page 4, line 30, and page 6, line 18) as being inconsistent with the amendment to the specification are actually correct and are consistent with the amendment to the specification correcting the typographical error. Specifically, both cited portions of the specification refer to the surface coating of the encapsulation vesicle as including a molecule capable of acting as an energy donor. The amendment to the specification clarifies this same exact point.

Therefore, the amendment to the specification filed on October 15, 2003, does not introduce new matter. Accordingly, the Examiner in respectfully requested to withdraw this objection.

**Rejection under 35 U.S.C. § 112, first paragraph**

Claims 1-5, 8, 10, 11, 13-21, 23-27, and 32-49 have been rejected under 35 U.S.C § 112, first paragraph, as allegedly not corresponding to the enabling written disclosure of the invention as it is set forth in the specification. In view of the amendments to the claims, this rejection is respectfully traversed.

The Office Action notes that Claim 1 allegedly does not adequately define the invention which is disclosed in the specification. Specifically, the Office Action states that claim 1 must further include that: (1) the fluorescent molecule must be capable of acting as a donor molecule; (2) the protection layer acts as a diffusion barrier to quenchers; and (3) a molecule capable of acting as an energy acceptor be present outside the transparent layer.

Claim 1 has been amended to further clarify that the fluorescent molecule "is capable of emitting energy." In addition, claim 1 has also been amended to provide that that "protection layer reduces quenching of said fluorescent molecule."

However, the Applicants disagree with the assertion that the complex of claim 1 must also have a molecule capable of acting as an energy acceptor present on the outside of the transparent layer. As noted in the specification (see Figure 1, page 2, lines 18-19, and page 6, lines 1-3), the encapsulation vesicle of the present invention includes a matrix, a surface coating, and a protection layer. In other embodiments (as shown in Figures 2-4) the molecule capable of acting as an energy acceptor may additionally be attached to the transparent layer (see page 12, lines 8-23). Therefore, the specification does not require that the encapsulation vesicle must also have a molecule capable of acting as an energy acceptor present on the outside of the transparent layer in every embodiment.

Accordingly, in view of the amendments to claim 1 and the remarks set forth herein, withdrawal of this rejection is respectfully requested.

**Rejection under 35 U.S.C. § 112, second paragraph**

***Claim 13 (Office Action, paragraph 6)***

Claims 13 has been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention. Specifically, the Office Action notes that there is no antecedent basis for the term “fluorescent donor molecule” in either claim 8 or claim 1.

Claim 13 has been amended to correct the antecedent basis of the claim elements, rendering the rejection moot. Accordingly, withdrawal of the rejection is respectfully requested.

***Claims 21, 26, and 33-35 (Office Action, paragraph 7)***

Claims 21, 26, and 33-35 have also been rejected as allegedly being duplicates of claim 1. Specifically, the Office Action states that the term “for use in” of claims 21, 26, and 33-35 does not further distinguish the claimed compositions from the composition of claim 1.

Claims 21 and 33-35 have been amended to remove the objectionable language and have been further amended to recite specific structural limitations that are not recited in claim 1. In addition, claim 26 has been canceled.

Accordingly, since amended claims 21 and 33-35 further distinguish the claimed compositions from the composition of claim 1, removal of the rejection is respectfully requested.

**Rejection under 35 U.S.C. § 102(b)**

Claims 1-5, 8, 10, 11, 13-21, 23-27, and 32-49 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 5,521,289 to Hainfeld et al. (hereinafter "Hainfeld"). This rejection is respectfully traversed.

As summarized by the Examiner, the present invention is directed to an encapsulation vesicle that includes a (1) matrix, (2) a surface coating, which includes a fluorescent molecule capable of emitting energy, and (3) a protection layer.

In rejecting the claims, the Examiner asserts that the combined bifunctional fluorescent and metal particle probes of Hainfeld anticipate these claims because the organo-metallic complex disclosed at Col. 8, line 4 ff, includes structures corresponding to a matrix and surface coating as recited in claim 1 of the present application. Specifically, the Examiner states that the metal core of the organo-metallic complex of Hainfeld is equivalent to the "matrix" of the complex recited in claim 1 of the present application, and that the fluorescent compound is equivalent to the surface coating. The following diagrams represent the structural organization of the Hainfeld complex and the complex of the present application.

**Complex of the Present Application**

C. Protection Layer
B. Surface Coating (Including fluorescent groups)
A. Matrix

**Hainfeld Complex**

B. Organic Groups (Including fluorescent groups)
A. Metal Core

The Applicants respectfully disagree with the Examiner's correlation of the components of the organo-metallic complex of Hainfeld to elements of the complex of the present application. In particular, the Applicants disagree that the "matrix" of the present invention is equivalent to the metal core of the organo-metallic complex of Hainfeld. Claim 1 has been amended to recite a "polymeric matrix," thereby

distinguishing the matrix of the present invention from the metal core of the Hainfeld complex.

In addition the Applicants disagree that the "Surface Coating" and "Protection Layer" of the present invention are equivalent to the "Organic Groups" of the Hainfeld complex. In particular, the Applicants note that the "Protection Layer" of the present invention is an additional structural feature that that is not disclosed in Hainfeld. Furthermore, the Applicants also note that the surface layer of the present invention includes the fluorescent groups, not the protection layer. The protection layer is separate and distinct from the surface layer and both combined are not equivalent to the organic group of Hainfeld. Accordingly, the "protection layer" of the present invention is an additional structural element that is not disclosed in Hainfeld.

Therefore, since Hainfeld fails to disclose a "polymeric matrix" and fails to disclose the additional structural element of a "protection layer," the cited reference cannot anticipate the claimed invention. Accordingly, the Applicants respectfully request that this rejection be withdrawn.

#### **Rejection under 35 U.S.C. § 103**

Claims 11 and 14 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Hainfeld.

As noted above, Hainfeld is fundamentally deficient in that it does not teach or suggest all of the elements of the claimed structures, e.g., a polymeric matrix and a protection layer. In failing to teach or suggest all of the elements of the claimed structure the cited reference cannot render the invention of the present application obvious. Accordingly, the Applicants respectfully request that this rejection be withdrawn.

**CONCLUSION**

Applicants submit that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

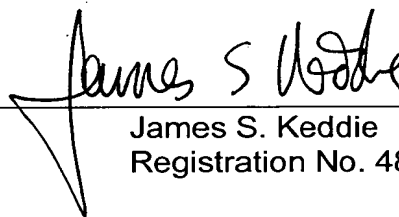
The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication, including any necessary fees for extensions of time, or credit any overpayment to Deposit Account No. 50-1078.

Respectfully submitted,  
BOZICEVIC, FIELD & FRANCIS LLP

Date: \_\_\_\_\_

04/07/04

By: \_\_\_\_\_



James S. Keddie  
Registration No. 48,920

EXHIBIT A

## Auto-Reply Facsimile Transmission



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200 Middlefield Road, Suite 200  
Menlo Park, CA 94025  
Telephone: (650) 327-3400  
Facsimile Number: (650) 327-3231

Date: August 29, 2003  
To: Ex. Mary Ceperly, Art Unit 1641  
U.S. Patent and Trademark Office  
Fax: 703-872-9307  
From: Bret Field  
Docket No. 10004415-1

Re: U.S. Patent Application No. 09/740,660  
Response to Office Action dated 05/19/03

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**Fax:** 703-872-9307  
**From:** Bret Field  
**Docket No.** 10004415-1

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**Re:** U.S. Patent Application No. 09/740,660  
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@8/29/03

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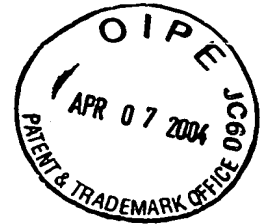
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IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Ganapati Mauze

Serial No.: 09/740,660

Filing Date: 12/18/00

Examiner: Mary Ceperly

Group Art Unit: 1641

Title: Fluorescence Immunoassays Using Organo-Metallic Complexes for Energy Transfer

COMMISSIONER FOR PATENTS  
PO Box 1450  
Alexandria, VA 22313-1450

TRANSMITTAL LETTER FOR RESPONSE/AMENDMENT

Sir:

Transmitted herewith is/are the following in the above-identified application:

- (X) Response/Amendment (X) Petition to extend time to respond  
( ) New fee as calculated below ( ) Supplemental Declaration  
( ) No additional fee (Address envelope to "Mail stop Non-Fee Amendments")  
(X) Other: Postcard (fee \$ )

CLAIMS AS AMENDED BY OTHER THAN A SMALL ENTITY						
(1) FOR	(2) CLAIMS REMAINING AFTER AMENDMENT	(3) NUMBER EXTRA	(4) HIGHEST NUMBER PREVIOUSLY PAID FOR	(5) PRESENT EXTRA	(6) RATE	(7) ADDITIONAL FEES
TOTAL CLAIMS		MINUS		= 0	X \$18	\$ 0
INDEP. CLAIMS		MINUS		= 0	X \$84	\$ 0
[ ] FIRST PRESENTATION OF A MULTIPLE DEPENDENT CLAIM					+ \$280	\$ 0
EXTENSION FEE	1ST MONTH \$110.00	2ND MONTH \$410.00	3RD MONTH \$930.00	4TH MONTH \$1450.00		\$ 110
	X					
OTHER FEES						\$
TOTAL ADDITIONAL FEE FOR THIS AMENDMENT						\$ 110

Charge \$ 110 to Deposit Account 50-1078. At any time during the pendency of this application, please charge any fees required or credit any overpayment to Deposit Account 50-1078 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 50-1078 under 37 CFR 1.16, 1.17, 1.19, 1.20 and 1.21. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

Ganapati Mauze

I hereby certify that this paper is being facsimile transmitted to the Patent and Trademark Office on the date shown below.

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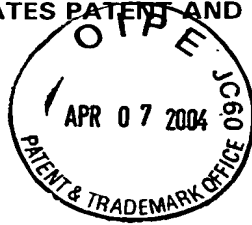
Attorney/Agent for Applicant(s)  
Reg. No. 37,620

Date: 08-29-2003

AGILENT TECHNOLOGIES, INC.  
Legal Department, DL429  
Intellectual Property Administration  
P. O. Box 7599  
Loveland, Colorado 80537-0599

PATENT APPLICATION  
ATTORNEY DOCKET NO. 10004415-1

IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE



Inventor(s): Ganapati Mauze

Serial No.: 09/740,660

Filing Date: 12/18/2000

Examiner: Mary Ceperly

Group Art Unit: 1641

Title: Fluorescence Immunoassays Using Organo-Metallic Complexes for Energy Transfer

COMMISSIONER FOR PATENTS  
Washington, D.C. 20231

PETITION FOR EXTENSION OF TIME

Sir:

In an Office Action mailed on May 19, 2003, on the above-identified U.S. Patent application, a shortened statutory period of 3 months was set for response. In accordance with 37 C.F.R. 1.136(a), applicant(s) hereby request(s) a:

- ☒ one month
- ☐ two months
- ☐ three months
- ☐ four months

time extension so that the period for response to the Office Action expires on 09/19/2003.

Authorization to charge the fee required by 37 CFR 1.17 to Deposit Account 50-1078 appears in the enclosed transmittal letter. At any time during the pendency of this application, please charge any fees required or credit any overpayment to Deposit Account 50-1078 pursuant to 37 CFR 1.25.

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Date of Deposit: 08-29-2003

Typed Name: Donna Macedo

Signature: 

Respectfully submitted,

Ganapati Mauze

By 

Bret Field for Timothy Joyc

Attorney/Agent for Applicant(s)

Reg. No. 37,620

Date: 08/29/2003

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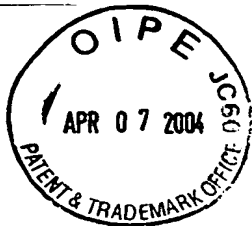


VIA FACSIMILE TO 703 872 9307

<b>AMENDMENT &amp; RESPONSE</b>	Attorney Docket Confirmation No.	1004415-1 3498
	First Named Inventor	Ganapati Mauze
	Application Number	09/740,660
	Filing Date	December 18, 2000
	Group Art Unit	1641
	Examiner Name	Mary Ceperly
	Title	Fluorescence Immunoassays Using Organo-Metallic Complexes for Energy Transfer

Dear Sir:

In response to the FINAL REJECTION dated May 19, 2003, please enter the following amendments:



## AMENDMENTS

### In the specification:

Page 4, paragraph of lines 8 to 13:

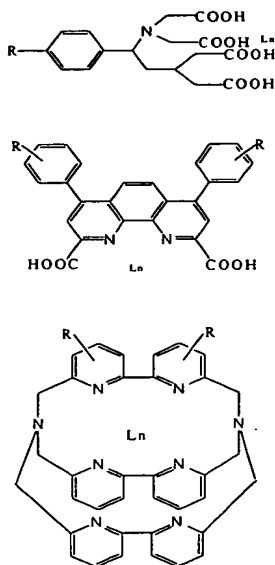
The term "surface coating" refers to a thin film or layer applied to a matrix material and shall include both known and unknown organo-metallic compounds and elements capable of acting as energy donors ~~acceptors~~. For purposes of this invention, the above term shall also include the situation when the donor is distributed in the entire matrix and parts thereof. In such a situation, at least a small fraction of the donor near the surface of matrix will participate in the energy transfer process.

### In the claims:

1. **(Currently amended)** An encapsulation vesicle, comprising:
  - (a) a matrix having a surface;
  - (b) a surface coating on said matrix, wherein said surface coating includes a fluorescent ~~donor~~ molecule ~~that is absorbed on,~~  
~~absorbed within, or covalently attached to the surface of said~~  
~~matrix; and~~
  - (c) a protection layer encapsulating said surface coating that permits at least partial transmission of fluorescence emission from said fluorescent molecule upon irradiation of said fluorescent molecule;  
~~wherein upon irradiation said fluorescent donor molecule emits fluorescence that is at least partially transmitted through said surface coating, and wherein said protection layer reduces collisional quenching of said fluorescence.~~
2. **(Previously presented)** An encapsulation vesicle as recited in claim 1, wherein said matrix comprises a sol-gel material.

3. **(Previously presented)** An encapsulation vesicle as recited in claim 1, wherein said matrix comprises silica and synthetic polymer.
4. **(Currently amended)** An encapsulation vesicle as recited in claim 1, wherein said fluorescent ~~donor~~ molecule is an organo-metallic complex, and wherein the matrix surface is modified with carboxyl groups so that the organo-metallic complex can be covalently attached to the matrix surface.
5. **(Currently amended)** An encapsulation vesicle as recited in claim 1, wherein said fluorescent ~~donor~~ molecule is an organo-metallic complex, and wherein the matrix surface is modified with amino groups so that the organo-metallic complex can be covalently attached to the matrix surface.
6. **(Canceled)**
7. **(Canceled)**
8. **(Currently amended)** An encapsulation vesicle as recited in claim 1, wherein said fluorescent ~~donor~~ molecule is an organo-metallic complex.
9. **(Canceled)**
10. **(Previously presented)** An encapsulation vesicle as recited in claim 8, wherein said organo-metallic complex is a ruthenium tris diphenyl phenanthroline complex.
11. **(Previously presented)** An encapsulation vesicle as recited in claim 8, wherein said organo-metallic complex has an emission maximum at about 650 nm.
12. **(Canceled)**

13. **(Previously Presented)** An encapsulation vesicle as recited in claim 8, wherein said fluorescent donor molecule is selected from the group consisting of:



where  $L_n$  is selected from the group consisting of Eu, Tb, Sm, and Dy; and R represents H or a functionality capable of covalently linking to the surface of said matrix.

14. **(Currently amended)** An encapsulation vesicle as recited in claim 8, wherein said fluorescent donor molecule has a fluorescence lifetime greater than 100 nanoseconds and is susceptible to collisional quenching by oxygen.
15. **(Previously presented)** An encapsulation vesicle as recited in claim 2, wherein said protection layer comprises a material that is translucent to said fluorescence.
16. **(Previously presented)** An encapsulation vesicle as recited in claim 2, wherein said protection layer comprises a material that is transparent to said fluorescence.
17. **(Previously presented)** An encapsulation vesicle as recited in claim 2,



wherein said protection layer comprises a sol-gel material.

18. **(Original)** An encapsulation vesicle as recited in claim 2, wherein said protection layer is modified with hydrophilic functionalities selected from the group consisting of hydroxyl, carboxyl and protonated amines.
19. **(Original)** An encapsulation vesicle as recited in claim 2 that was formed by suspension polymerization.
20. **(Currently amended)** An encapsulation vesicle as recited in claim 37, wherein said ligand comprises an acceptor molecule that is capable of absorbing fluorescence that has been emitted from said fluorescent ~~donor~~ molecule.
21. **(Previously presented)** An encapsulation vesicle as recited in claim 1 for use in a fluorescence energy transfer immunoassay.
22. **(Canceled)**
23. **(Currently amended)** An encapsulation vesicle as recited in claim 20, wherein an absorption band of said acceptor molecule overlaps with an emission band of said fluorescent ~~donor~~ molecule.
24. **(Previously presented)** An encapsulation vesicle as recited in claim 20, wherein said acceptor molecule is selected from the group consisting of fluorescein, Cy5 and allophycocyanin.
25. **(Previously presented)** An encapsulation vesicle as recited in claim 37, wherein said ligand is an antibody.
26. **(Previously presented)** An encapsulation vesicle as recited in claim 21, wherein said fluorescence energy transfer immunoassay is a sandwich assay.

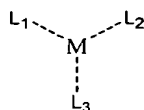
27. **(Previously presented)** An encapsulation vesicle as recited in claim 37, wherein said ligand is selected from the group consisting of proteins, DNA, RNA, polypeptides, aptamers and receptor molecules.
28. **(Canceled)**
29. **(Canceled)**
30. **(Canceled)**
31. **(Canceled)**
32. **(Previously presented)** An encapsulation vesicle as recited in claim 21, wherein said fluorescence energy transfer immunoassay is a competitive binding assay.
33. **(Previously presented)** An encapsulation vesicle as recited in claim 1 for use in a DNA or RNA fluorescence energy transfer hybridization assay.
34. **(Previously presented)** An encapsulation vesicle as recited in claim 1 for use in a fluorescence energy transfer binding assay between a ligand and a receptor.
35. **(Previously presented)** An encapsulation vesicle as recited in claim 34 for use in a fluorescence energy transfer binding assay between an aptamer and a protein.
36. **(Currently Amended)** An encapsulation vesicle as recited in claim 1, wherein said fluorescent donor molecule is selected from the group consisting of cyanines, oxazines, thiazines, porphyrins, phthalocyanines, fluorescent infrared-emitting polynuclear aromatic hydrocarbons, phycobiliproteins,

squaraines and organo-metallic complexes.

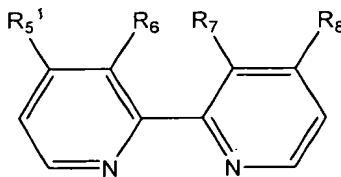
37. **(Previously presented)** An encapsulation vesicle as recited in claim 1 further comprising a ligand attached to said protection layer.
38. **(Previously presented)** An encapsulation vesicle as recited in claim 37, wherein said ligand is an antigen.
39. **(Previously presented)** An encapsulation vesicle as recited in claim 2, wherein said protection layer comprises silica and synthetic polymer.
40. **(Previously presented)** An encapsulation vesicle as recited in claim 20, wherein said acceptor molecule is selected from the group consisting of Fast green and Light green SF yellowish.
41. **(Previously presented)** An encapsulation vesicle as recited in claim 20, wherein said acceptor molecule is selected from the group consisting of cyanines, oxazines, thiazines, porphyrins, phthalocyanines, fluorescent infrared-emitting polynuclear aromatic hydrocarbons, phycobiliproteins, squaraines, organo-metallic complexes, and azo dyes.
42. **(Currently amended)** An encapsulation vesicle as recited in claim 1 further comprising an acceptor molecule attached to said protection layer, wherein said acceptor molecule is capable of absorbing fluorescence that has been emitted from said fluorescent donor molecule.
43. **(Previously presented)** An encapsulation vesicle as recited in claim 42, wherein said acceptor molecule is selected from the group consisting of Fast green and Light green SF yellowish.
44. **(Previously presented)** An encapsulation vesicle as recited in claim 42, wherein said acceptor molecule is selected from the group consisting of

fluorescein, Cy5 and allophycocyanin.

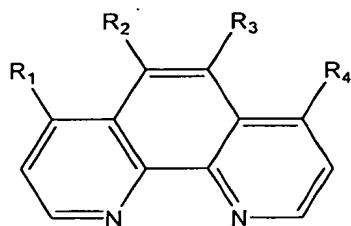
45. **(Previously presented)** An encapsulation vesicle as recited in claim 42, wherein said acceptor molecule is selected from the group consisting of cyanines, oxazines, thiazines, porphyrins, phthalocyanines, fluorescent infrared-emitting polynuclear aromatic hydrocarbons, phycobiliproteins, squaraines, organo-metallic complexes, and azo dyes.
46. **(Currently amended)** An encapsulation vesicle as recited in claim 42, wherein an absorption band of said acceptor molecule overlaps with an emission band of said fluorescent ~~donor~~ molecule.
47. **(Currently amended)** An encapsulation vesicle as recited in claim 1, wherein said ~~fluorescence~~ fluorescent molecule is susceptible to collisional quenching by oxygen and said protection layer reduces the diffusion of oxygen into said surface coating.
48. **(Currently Amended)** An encapsulation vesicle as recited in claim 8, wherein said fluorescent ~~donor~~ molecule is:



where M is selected from the group consisting of Ru, Os and Re; and L<sub>1</sub>-L<sub>3</sub> are each independently selected from the group consisting of:

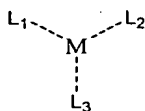


and

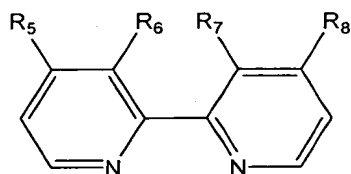


where R<sub>1</sub>-R<sub>8</sub> are each independently selected from the group consisting of H, alkyl and aryl.

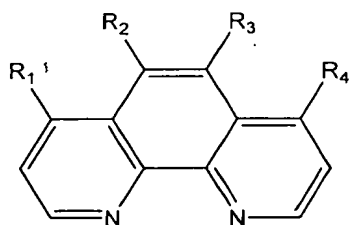
49. **(Currently Amended)** An encapsulation vesicle as recited in claim 8, wherein said fluorescent donor-molecule is:



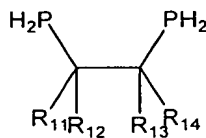
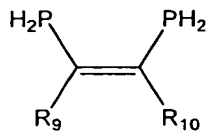
where M is Os;  
L<sub>1</sub> is:



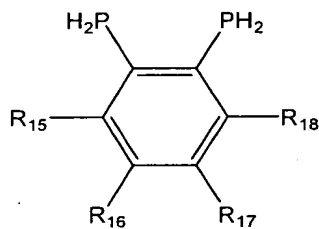
; or



; and L<sub>2</sub> and L<sub>3</sub> are independently selected from the group consisting of:



; and



where  $\text{R}_1\text{-R}_{18}$  are each independently selected from the group consisting of H, alkyl, and aryl.

## REMARKS

In view of the above amendments and the following remarks, the Examiner is respectfully requested to withdraw the rejections and allow Claims 1-5, 8, 10, 11, 13-21 and 23-49, the only claims pending and currently under examination in this application.

The specification has been amended to correct an obvious typographical error in the application as filed. The above claim amendments simply clarify the claim language. For example, Claim 1 has been amended to simplify the claim language. As these amendments introduce no new matter to the application and place the claims in better form for allowance, their entry by the Examiner is respectfully requested.

Claims 1-5, 8, 10, 11, 14-21, 23-27 and 32-49 have been rejected under 35 U.S.C. § 112, first paragraph for reasons a, b and c. It is believed that the above claim amendments address each of these issues and that this rejection may now be withdrawn.

Claims 1-5, 8, 10, 11, 14-21, 23-27 and 32-49 have been rejected under 35 U.S.C. § 112, second paragraph for issues a and b. It is believed that the above claim amendments address each of these issues and that this rejection may now be withdrawn.

Next, Claims 1, 4, 5, 8, 21, 32-35 and 47 were rejected 35 U.S.C. § 102(b) over Hainfeld.

As summarized by the Examiner, the structure of Claim 1 requires three specific components, i.e., (a) a matrix, (b) a surface coating and (c) a protection layer **enapsulating** the surface coating.

In rejecting the claims over Hainfeld, the Examiner asserts that the combined bifunctional fluorescent and metal particle probes anticipate these claims because

the metal/phenanthroline/fluorescent molecule complex disclosed at Col. 8, line 4 ff, includes structures corresponding to a matrix and surface coating.

However, nowhere does Hainfeld teach, or even suggest, a protection layer that encapsulates a surface coating, as required by the pending claims of the instant application. The polymer coating described at Col. 7, lines 44-47 of Hainfeld to which the Examiner points for this teaching actually corresponds to the surface coating of the claimed structures of the present application, as it is described as coating the metal core to provide functionality for bonding fluorescent or targeting molecules to the structure, and not as encapsulating a surface coating for a matrix, as claimed above.

As such, nowhere does Hainfeld teach (or even suggest) a protection layer as present in the claimed structures of the present application. Therefore, the rejection of Claims 1, 4, 5, 8, 21, 32-35 and 47 under 35 U.S.C. § 102(b) over Hainfeld may be withdrawn.

Finally, Claims 11 and 14 were rejected 35 U.S.C. § 103(a) over Hainfeld. As explained above, Hainfeld is fundamentally deficient in failing to teach or suggest all of the elements of the claimed structures, e.g., a protection layer that encapsulates a surface coating on a matrix. Accordingly, Hainfeld does not make Claims 11 and 14 obvious and this rejection may be withdrawn.



### CONCLUSION

Applicants submit that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication, including any necessary fees for extensions of time, or credit any overpayment to Deposit Account No. 50-1078.

Respectfully submitted,  
BOZICEVIC, FIELD & FRANCIS LLP

Date: 8.29.03

By:   
Bret Field  
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